

MISSOURI DEPARTMENT OF NATURAL RESOURCES

Michael L. Parson
Governor

Dru Buntin
Director

January 24, 2024

**FINANCIAL ASSISTANCE CENTER
FINDING OF NO SIGNIFICANT IMPACT/ENVIRONMENTAL ASSESSMENT**

TO: ALL INTERESTED GOVERNMENT AGENCIES AND PUBLIC GROUPS

In accordance with procedures for environmental review found at 10 CSR 60-13.030, a review has been performed on the proposed action below:

Project Identification: Drinking Water System Treatment, Distribution, and Storage Improvements

Applicant: City of Memphis Project No: DW291363-02

City: Memphis County: Scotland State: Missouri

Estimated Project Amount: \$3,568,950

Potential State Revolving Fund (SRF) Amount: \$3,568

COMMUNITY DESCRIPTION:

Location: The City of Memphis is located in northeastern Missouri in central Scotland County at the intersections of Highways 36 and 15. The city is 10 miles south of the Iowa border and 35 miles west of the Illinois border.

Population, Present and Projected, and Design Year: The city serves a population of approximately 2,000 people with an average daily water demand of 130,000 gallons per day (gpd) and a max day flow of 230,000 gpd. Twenty year growth forecasts approximately 2,080 people with an average daily water demand of 148,000 gpd and a max day flow remaining at 296,000 gpd.

Current Methods of Supply, Storage, and Distribution: The distribution system consists of 22 miles of water mains and ranges from 1 to 10 inches in diameter. The source for the city is Lake Showme which supplies the treatment plant. The design capacity of the plant is 720,000 gpd and treatment processes include sedimentation, coagulation, flocculation, filtration, and disinfection. High service pumps supply water to the system from two 78,000 gallon clearwells. Storage is currently provided by one 250,000 gallon elevated storage tank.



PROJECT DESCRIPTION:

Water Treatment Improvements: Water plant process improvements include the construction of a new permanganate building at Lake Showme. The construction will include a new building and fence at Lake Showme connecting over the raw water intake line. The building will include permanganate feed equipment for chemical injection into the raw water pipe.

Distribution Improvements: The proposed distribution system improvements include water line replacement and a connection to the new tower. Approximately 1,826 feet of 8-inch water line will be installed to replace the water line along Huntington Street running east from Knott Street until Ridge Street. From the corner of Huntington and Ridge Street the 8-inch PVC main will run south to connect to the new elevated storage tank, tie in Dudley Street, and complete the connection at Grand Avenue.

Security Improvements: The proposed security improvements include fencing around the new elevated storage tank and around the new permanganate building at Lake Showme.

Water Storage Improvements: As a part of this project, a new 125,000 gallon elevated storage tank will be constructed along Ridge Street. All specified accessories, water lines connecting the tank to the existing water distribution system, security fence, and all associated electrical work is included as part of the project. The project will include a mixing system being installed in both the new elevated storage tank and the existing elevated storage tank.

Purpose and Need: The new chemical feed point at Lake Showme will allow the city to add sodium permanganate solution into the raw water line from the lake. This permanganate solutions aids in the potential reduction of disinfection byproducts from the water treatment process. The permanganate also has the potential to reduce unwanted taste and odor from the finished water.

The new elevated storage tank and water line upsizing will provide better hydraulics in some areas of the city. The smaller storage tank along with the mixers will prevent stagnation and stratification of water in the elevated storage tanks. This will lower the water age in the system and improve water quality. Fencing will provide security at the most critical water system sites.

Design Factors: Work will be performed in right-of-ways, easements, and on property owned by the water system. Construction activity will consist of boring, trenching, digging, movement of machinery over the surface, and constructing of new structures. The design standards used in this project are based on the 2013 Minimum Design Standards for Missouri Community Water Systems.

The total construction cost for the proposed improvements including engineering and administrative costs is approximately \$3,568,950.

ALTERNATIVES CONSIDERED:

- **No Action (Not Selected)** – This alternative would require the city to continue to operate and maintain the existing system to provide water service to its customers. This alternative would result in the system not addressing the issues which include an oversized tower, undersized and faulty water lines, water quality issues, and inadequate security.

Treatment Alternatives

- **Action Alternative No. 1 Permanganate Feed Building for Raw Water Line (Selected)** – Construct a permanganate building over the raw water line at Lake Showme.

Security Alternatives

- **Action Alternative No. 2 Fencing for Water System Structures (Selected)** – Provide security fencing for the permanganate building and around the new elevated storage tower.

Storage Alternatives

- **Action Alternative No. 3 Construct Elevated Storage Tank on Knott Street (Not Selected)** – Construct a new 125,000 gallon storage tank to the west of Knott Street with a 440 feet of 8-inch PVC water line and the replacement of 600 feet of water line along Knott Street with 8-inch PVC. The project will include mixing systems in both elevated storage tanks.
- **Action Alternative No. 4 Construct Elevated Storage Tank on Grand Ave (Not Selected)** – Construct a new 125,000 gallon storage tank north of Grand Ave with a 150 feet of 8-inch PVC water line. The project will include mixing systems in both elevated storage tanks.
- **Action Alternative No. 5 Construct Elevated Storage Tank on Ridge Street (Selected)** – Construct a new 125,000 gallon storage tank to the west of Ridge Street with a 100 feet of 8-inch PVC water line. The project will include mixing systems in both elevated storage tanks.
- **Action Alternative No. 6 Construct Elevated Storage Tank on Round Barn Road (Not Selected)** – Construct a new 125,000 gallon storage tank to the west of Round Barn Road with a 940 feet 8-inch PVC water line. The project will include mixing systems in both elevated storage tanks.

Distribution Alternatives

- **Action Alternative No. 7 Water Line Replacement and Looping (Selected)** – Install approximately 1,826 feet of 8-inch PVC pipe that will replace an old and undersized water line and provide a complete and usable connection from the new storage tank to the existing distribution system.

REASONS FOR SELECTION OF PROPOSED ALTERNATIVES:

Selected Actions – Action Alternative Nos. 1, 2, 5, and 7 were selected over the other alternatives as they provide the most feasible alternatives to the city’s water system. The selected alternatives will provide improvements to the water treatment process, storage, and distribution system.

ENVIRONMENTAL IMPACT SUMMARY:

1. Primary Impacts:

- a. Construction: Blowing dust, temporary surface disruption, and noise from construction equipment will occur during construction, but these impacts are expected to be minor and temporary in nature. Best management practices for erosion control measures are part of the project specifications.
- b. Environmental: Environmental impacts of the project are expected to be temporary in nature. The proposed improvements will improve the water treatment and distribution process to provide safe and reliable drinking water to the city’s customers for the next 20 years.
- c. Financial: The city raised rates for Phase I of the project to \$76.53 for 5,000 gallons of water used in a month. The average bill in Memphis is \$60.04 for the actual water usage in the city. Rates are being evaluated again with this Phase II project. Due to the improvements made at the water treatment plant and splitting the entire project into two phases, the city does not anticipate significant increases to the user rates, but rates may be affected.

2. Secondary:

- a. Population Impacts: This project is designed to serve the existing water system. No relocation of people or structures is anticipated.
 - b. Land Use and Trends: No significant change in land use trends is expected to result from this project.
 - c. Environmental: No significant secondary environmental impacts are expected as a result of this project.
3. Mitigation Measures Necessary to Eliminate Adverse Environmental Effects: Noise, dust, and erosion normally associated with construction will be minimized by good engineering and construction practices. Restoration of disturbed areas along the water mains will be undertaken after construction is complete. Any debris such as demolition and construction waste, trees, or brush will be disposed of properly.

The Gray and Indiana bats are included on the federal and state-listed endangered species, and Northern Long-Eared bats are included on the federal-listed threatened species list and may be present in the area. Caves known to harbor the bats are not to be entered.

4. Irreversible and Irretrievable Commitment of Resources: Fuel, chemicals, and construction materials will be irretrievably committed to the project. Future funds will be committed to the operation and maintenance of the water system.
5. Positive Environmental Effects to be Realized from the Proposed Project: The proposed improvements to the city's system will help provide better water quality, improve operations, extend the useful life of existing structures, reduce water loss, and provide more reliability throughout the system.
6. Reasons for Concluding there will be No Significant Impacts: The proposed project will have a positive impact on water quality and reliability. Population densities and land use trends will not be significantly affected. Where minor impacts will occur, appropriate mitigation measures are planned.

PUBLIC PARTICIPATION:

1. Public Involvement: The city conducted a public meeting to discuss the proposed project improvements, the engineering alternatives, and environmental impacts of the project on November 13, 2023, at the city hall in Memphis, Missouri. Notice of the meeting appeared on October 12, 2023, in the Memphis Democrat a weekly newspaper of general circulation in the Memphis region.
2. Public Opposition or Opinions: No adverse comments on the proposed project were received.

COORDINATION AND DOCUMENTATION WITH OTHER AGENCIES AND SPECIAL INTEREST GROUPS:

1. Facility Plan:
 - Water System Facility Plan dated May 22, 2014, Addendum No. 1 dated May 5, 2016, Addendum No. 2 dated May 1, 2017, letter with additional information for Addendum No. 2 dated July 21, 2017, Addendum No. 3 dated April 9, 2020, Addendum No. 4 stamped August 13, 2021, and Addendum No. 5 July 5, 2022.
 - Environmental Information Document dated November 14, 2023.
All documents were prepared by McClure, Inc.

2. Federal: X U.S.F.W.S. X Corps of Engineers

3. State:

- a. Missouri DNR – State Historic Preservation Office
- b. Missouri DNR – Division of State Parks
- c. Missouri DNR – Missouri Geological Survey
- d. Missouri Office of Administration – Federal Assistance Clearinghouse
- e. Missouri Department of Conservation

Historical and Cultural Notices

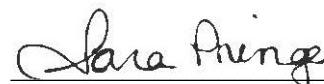
- a. Missouri Department of Natural Resources – State Historic Preservation Office
- b. Indian Tribes

4. Consulting Engineer: McClure, Inc.
107 Butler Street
P.O. Box 366
Macon, MO 63552

This action is taken on the basis of a careful review of the facility plan on file in the office of the Department of Natural Resources' Financial Assistance Center at 1101 Riverside Drive, Jefferson City, MO 65101. These are available for public review upon request Monday through Friday, 8:00 a.m. to 5:00 p.m. This agency will not take any administrative action on this project for at least 30 calendar days from the date of this document. Persons wishing to comment on the above environmental decision may submit comments to Lauren Graessle, P.E., of the Department of Natural Resources, Financial Assistance Center, Jefferson City, MO 65102-0176, during this period. Thank you.

Sincerely,

FINANCIAL ASSISTANCE CENTER



Sara Pringer, Director

Financial Assistance Center



Matthew Shallow
Associate Engineer

SP:msc

Attachments

January 24, 2024
Date

DISTRIBUTION

Department of Conservation
P.O. Box 180
Jefferson City, MO 65102

Conservation Federation of Missouri
728 West Main Street
Jefferson City, MO 65101

U.S. Environmental Protection Agency
c/o Carter Tharp – WWPD/SRFB
Tharp.carter@epamail.epa.gov

Missouri Department of Natural Resources
Missouri Geological Survey
Environmental Geology Section
P.O. Box 250
Rolla, MO 65402-0250

Missouri Department of Natural Resources
Division of State Parks
State Historic Preservation Office
P.O. Box 176
Jefferson City, MO 65102-0176

U.S. Fish and Wildlife Service
Ecological Services
101 Park DeVille Drive, Suite A
Columbia, MO 65203-0057

National Park Service
Midwest Region
mwro_compliance@nps.gov

USDA Rural Development
601 Business Loop 70 West
235 Parkade Center
Columbia, MO 65203

Gilmore and Bell, P.C.
c/o Shannon Walsh Creighton
One Metropolitan Square
211 N. Broadway, Suite 2000
St. Louis, MO 63102-2741

SRF File DW291363-02 (DW Reis Rosenbloom)

City of Memphis
c/o Stacey Alexander, Utility Supt.
125 West Jefferson Street
Memphis, MO 63555

McClure, Inc.
c/o Philip Wilson, P.E.
107 Butler Street
P.O. Box 366
Macon, MO 63552

Missouri Department of Natural Resources
Northeast Regional Office
1709 Prospect Drive
Macon, MO 63552-2602

Memphis Democrat
121 South Main Street
Memphis, MO 63555

Environmental Protection Agency
Office of Federal Activities
Ariel Rios (2252A)
1200 Pennsylvania Avenue, N.W.
Washington, DC 20004

Council of Environmental Quality
722 Jackson Place, N.W.
Washington, DC 20503

U.S. Army Corps of Engineers
Rock Island District
Clock Tower Building
P.O. Box 2004
Rock Island, IL 61204-2004

Northeast Missouri Regional Planning Commission
121 South Cecil Street
Memphis, MO 63555

Lewis, Rice and Fingersh
c/o David Brown
500 North Broadway, Suite 2000
St. Louis, MO 63102

Attached Maps

1. State Map/Project Location Map
2. Project Location Map
3. Distribution Improvements Map

State of Missouri





WATER SYSTEM IMPROVEMENTS, PHASE II

CITY OF MEMPHIS MISSOURI

IMPROVEMENTS LOCATIONS

